Electronic Version
Stylesheet Version v1.1.1

Description

[LANDROWLER]

Background of Invention

[0001] The conventional rowing machine or rowing simulators focus primarily on the development of the muscle groups associated with rowing, using foreign components. This does not deal with the balance, the specific rowing motion and technique, as occurs on the water, when using the familiar components of a rowing shell. The invention herein most closely compares too, what is in most cases, a prohibitively expensive and impractical indoor rowing tank.

Summary of Invention

[0002] It is therefore the primary objective of the present invention to place the athlete within the actual components that he/she comes in contact with while rowing on the water. Also, to confront him/her with the obstacles that must be overcome for the execution of a proper rowing stroke, as well as the ability to adjust the degree of difficulty. The oars, the rigger, the seat and seat tracks are all actual

components from an elite single rowing shell. The foot stops are a different design to accommodate design practicalities. All of these components are adjustable as on an actual boat. The machine can be rigged to the exact specifications for each athlete as they would have in a boat on the water. The energy from the oars arc during the drive phase of the stroke is transmitted to turn a set of bicycle wheels mounted stern and bow that sit on rollers excepting the weight of the rower and the rowing machine frame. Thus allowing the feel of the run of a boat hull on water. The roller frame is connected to the main rowing machine frame in a way that allows the two frames to swivel simultaneously on the hull swivel they are mounted on and still allow the main rowing machine frame to move slightly to the stern and bow. This movement simulates the unwanted effect of stern check or bow check. The roller frame has mounted under the rollers themselves a male radius that sits, at each end, on two wheels. This allows the male radius to rotate at the proximity of a racing shell hull when it is on the water. These wheels can be spread apart or moved closer together to effect the degree of difficulty the rower has in balancing the machine as he rows. Further apart being the most stable position.

Gears, typically a double chain ring with nine speed cassette, allow quick access to a range of load never before possible on a machine or rowing simulator.

Brief Description of Drawings

[0003] Fig. 1 Shows the plan view of the machine.

[0004] [][]Fig. 2 Shows the elevation of the machine.

[0005] [][]Fig. 3 Shows a stern view elevation of the bicycle wheel mounted on the roller that is mounted on the hull swivel device.

[0006] [][]Fig. 4 Shows a sectional plan view of the drive train, bow end.

[0007] [][]Fig. 5 Shows a sectional plan view of the drive train, stern end.

[0008] [][]Fig. 6 Is a plan view of the rollers and frame without male, radius, hull swivel device attached.

[0009] [][]Fig. 7 Is a side view of the rollers and frame without male, radius, hull swivel device attached.

[0010] [][]Fig. 8 Is a side view of a roller that the bicycle wheels sit on.

[0011] [][]Fig. 9 Is a front view of a roller that the bicycle wheels sit on.

[0012] [][]Fig. 10 Shows a front view of the chain crank.

[0013] [][]Fig. 11 Shows a side view of the chain crank.

[0014] [][]Fig. 12 Is a side view of the crank and bungee cord assembly, at furthest drive point.

[0015] [][]Fig. 13 Side view of ¼swivel pulley Fig. 9 Side view of oar lock swivel pulley coupler with cross section of oar.

[0016] [][]Fig. 14 Top view of 1/4 swivel pulley.

[0017] [][]Fig. 15 Side view of oar lock swivel pulley coupler with cross section of oar.

[0018] [][]Fig. 16 Side view of main frame-roller frame coupler.

Detailed Description

[0019] The Landrowler is a stationary rowing machine. It is designed for the Accomplished rower or the novice. It features rigging that is precisely the specifications of a rowing shell used for racing. An 8' long x 4"x 2" rectangular tube with 1" x 2" rectangular tubes for forks, protruding up from each end at 50-degree angles away from the middle, form the main frame tube and forks. Typical 27 radius, or 700cm bicycle tires, are mounted on the ends of the forks.(see fig. 1). On the main frame tube, is mounted a platform,35, were the seat tracks, seat and the rigger are mounted. The platform is flat and centered on the frame at the far end of the bow. The dimensions of

the platform are 34x 12 overall. The rigger, 10, seat tracks, 14, seat, 13, and oars, 31, are all exactly the same components used on elite racing shells. The rigger is a bow mounted rigger. The seat and tracks are non specific. Foot stops, 15, are modified and placed at a location proximal to that of a racing single shell. The oars are of any type used by the rower in a sculling craft. All of the rowing components are adjustable as they would be on a boat.(see fig. 1). As the rower cycles through the rowing stroke, a ¼ pulley, 12, located from just behind the oar-lock and extending outboard from oarlocks approximately 18", is connected to the oar at about 18" outboard from the oar lock. The oar then pulls a cable around the perimeter of the ¼ pulley by means of a coupling device, fig. 15, connecting the oar to the ¼pulley, (see fig. 1) and (fig. 8 and 9, ref. char. 32). This condition occurs on both starboard and port oarlocks. The cable then continues on, passing through a height adjusting pulley located about half way down on the rigger tube, 36. From the height ad-justing pulley the cable feeds through a swivel pulley, 22, mounted on the side of the main frame tube at a point aplomb to the oar lock, 11, and ¼ pulley assembly, 12. It then passed down the inside of the main frame tube, 7,

towards the stern end of the machine. It loops through a pulley located in the tube, unbroken, 23, then back towards the bow end were it passes out the other side just as it came in the side as described above. (see fig. 1 and 3). The pulley that the cable passed through in the main frame tube is attached to a chain, 23. This chain continues down the main frame tube towards the stern end. The chain passes around a chain wheel and crank, 17. After it passes around the crank, it then is attached to a bungee cord, 27, (fig 12). The length of chain is such that when the cable is pulled and the chain moves with it, the chain will not loose contact with the chain ring at either catch or release end of the rowing stroke. When the drive or pull phase of the stroke is completed the bungee cord is outstretched. When the oar goes through the release and recovery phase of the stroke returning the oar blades to the bow end, the bungee cord returns the chain to its position at the start of the drive phase. This is facilitated by the fact that the hub of the stern wheel is equipped with a cassette or cluster of gears that have a free wheel device allowing for drive and recovery, 18. The machine is equipped with a full set of gears as on a modern bicycle. In the current case, a 9-speed cassette is used with a

double chain wheel that is mounted just outside of the above-mentioned crank on the same axle, 17, (see fig. 2 and 5) The bicycle wheels sit on and turn a set of rollers, 4, (fig 2,6 and 7). One roller at the bow end and two at the stern end. The two at the stern end are 11" apart on center. The bow roller and the closest roller to it at the stern end, have pulleys attached to the same axle and extending out far enough to clear the frame, (fig. 6). A belt is run between these two pulleys, 24. As the stern end wheel is driven it turns the roller and the pulley that the belt is attached to. The belt then turns the bow roller which turns the bow wheel. (see fig. 6). The stern roller not involved with the belt drive, has on the same axle, protruding out from the frame on each side a fan for resistance,40. The roller frame and the main frame are separate. They are connected by a set of four coupling plates, 6. Two plates at the bow end, either side, and two at the stern end, either side. They are bolted in such a way as to allow the main frame to move separately, bow to stern but not port to starboard (side to side).(see fig. 15). These coupling plates may also be dampened or completely detained to prevent any motion. The roller frame has attached to it, bow and stern, at just below the bow rollers and between

the stern rollers, a male radius, (fig. 3). This radius sits on a pair of wheels at each end, 2, that allow the coupled frames to swivel simultaneously side to side in the same way a boat hull does on the water. (see fig. 3). The wheels that the male radius sit on can be moved closer together or further apart. This adjusts the degree of difficulty for balancing the boat. On each side of the male radius is a protrusion that acts as a stop, 36, so that the machine will not fall over. (see fig. 3). Within this protrusion is an adjustment rod, 20. This rod is threaded to set at different depths to control when the stop protrusion will make contact. In addition there is a tensioning device that dampens or detains the swivel motion.